Monitoring long term trends in the use by birds of Te Waihora-Lake Ellesmere: the importance of the 2013 initiative

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Purpose

- Background
- Aim/objectives
- Protocol/Method
- 2013 results
- Some evaluation cf ‘censuses’
  - Wading birds: cause for concern?
- Where to from here

Background

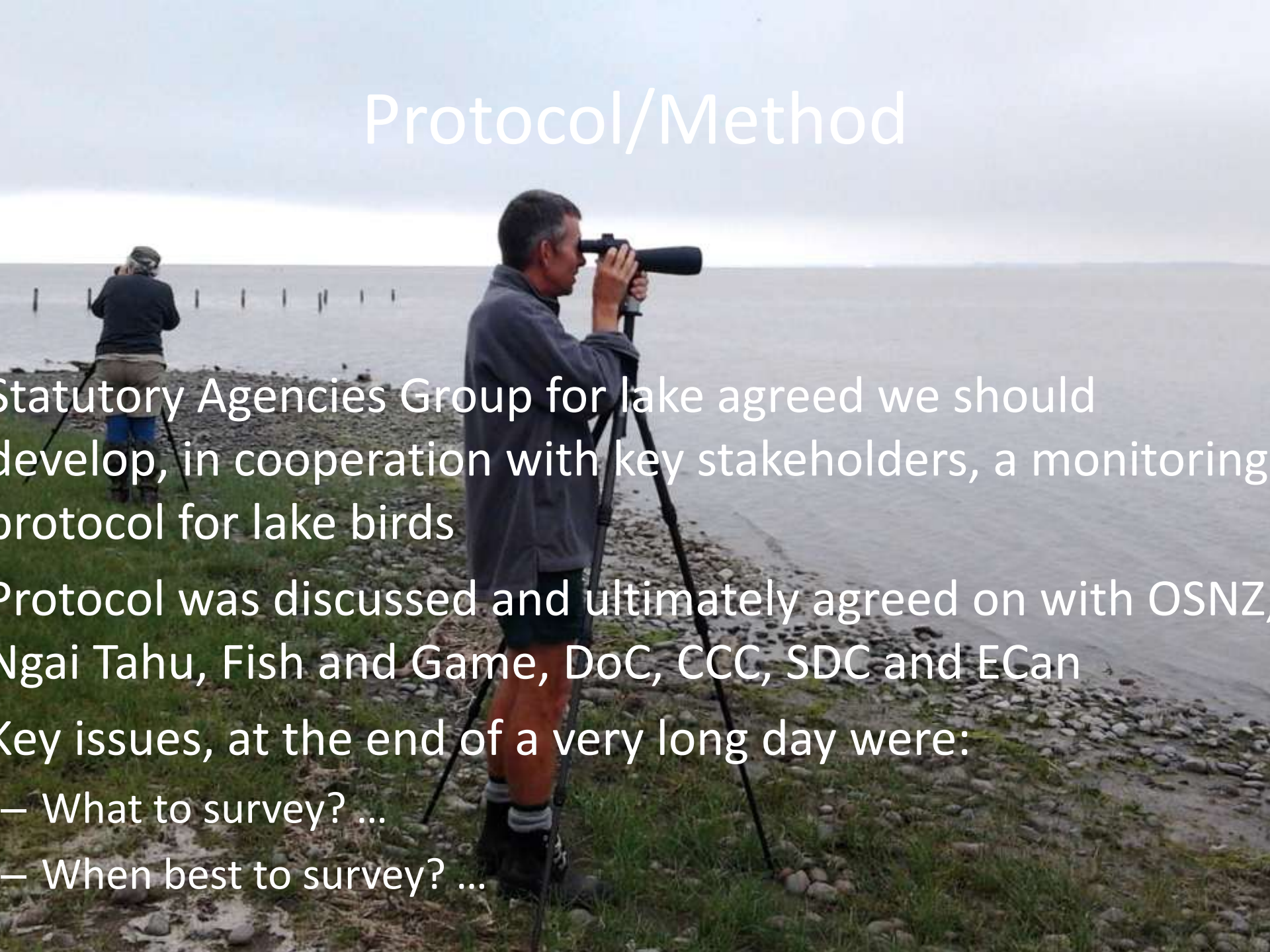
- Much effort by multiple organisations in counting and/or otherwise monitoring birds around Te Waihora/Lake Ellesmere.
- This work has ranged from:
  - biannual trend counts of waterfowl by Fish and Game North Canterbury
  - monthly trend counts of all observable birds in 1986/87 by the former NZ Wildlife Service (Hughey and O'Donnell unpublished data)
  - seasonal wading bird counts by the Ornithological Society of NZ (OSNZ)
  - bittern monitoring by Environment Canterbury (ECan)
  - biannual trend counts by Christchurch City council (CCC).
- Consistent methods used in some of these surveys but no overall bird monitoring strategy for the lake.
- Moreover, none of the methods were designed to connect with management controls or drivers of change.

(Photo – courtesy Grahame Bell)

Aim/objectives

- Aim:
  - *Develop and implement an integrated monitoring programme for the diverse range of birdlife and associated values of Te Waihora/Lake Ellesmere that provides timely, cost effective and relevant information for lake and birdlife managers, and other stakeholders.*
- Objectives:
  - identifies spatial variation by guild, and where necessary within-guild (e.g., for black swan and Canada geese);
  - uses geographically consistent spatial boundaries;
  - incorporates standard recording practice, i.e., a standard data sheet;
  - undertaken at least annually for comparative purposes;
  - provides data that can be readily compared to the 1980s baseline bird abundance data;
  - incorporates the least possible resource and skill requirements;
  - management relevant;
  - has results which can be readily and speedily distributed to interested parties; and
  - links to state of the lake reporting.

Protocol/Method



Statutory Agencies Group for lake agreed we should develop, in cooperation with key stakeholders, a monitoring protocol for lake birds

Protocol was discussed and ultimately agreed on with OSNZ, Ngai Tahu, Fish and Game, DoC, CCC, SDC and ECan

Key issues, at the end of a very long day were:

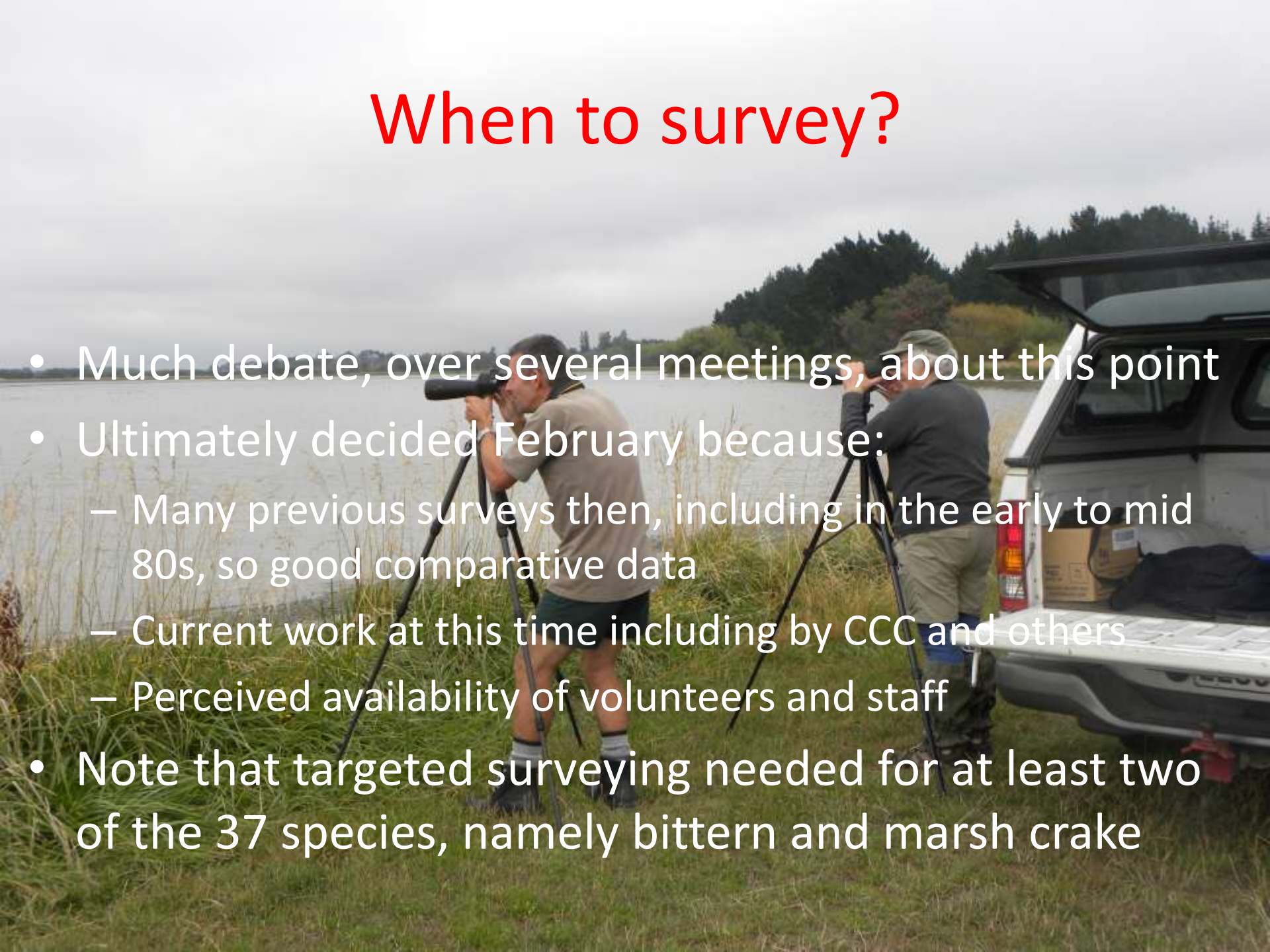
- What to survey? …
- When best to survey? …

What to survey?

- All wetland birds to be recorded but reporting, for management purposes, on 37 species representing 7 guilds of wetland bird species. Guilds and key species:

Guild and example species	Maori name	Scientific name	
1. Open water divers			
Little cormorant	Kawaupaka	P. melanoleucos	
NZ scaup	Papango	Aythya novaeseelandiae	
2. Deep water waders			
Royal spoonbill	Kotuku ngutu-papa	Platalea regia	
Pied stilt	Poaka	Himantopus himantopus	
Bar-tailed godwit	Kuaka	Limosa lapponica	
3. Shallow water waders			
Banded dotterel	Tuturiwhatu	C. bicinctus	
Wrybill	Ngutu parore	Anarhynchus frontalis	
Lesser knot	Huahou	Calidris canutus	
Sharp-tailed sandpiper		C. acuminata	
4. Dabbling waterfowl			
Black swan	Wani	Cygnus atratus	
Grey teal	Tete	A. gracilis	
6. Aerial hunting gulls & terns			
Black-billed gull		Larus bulleri	
Caspian tern	Taranui	Sterna caspia	
7. Swamp specialists			
Australasian bittern	Matuku	Botaurus poiciloptilus	
8. Riparian wetland species			
Australasian harrier hawk	**Kahu**	**Circus approximans**	

When to survey?



- Much debate, over several meetings, about this point
- Ultimately decided February because:
  - Many previous surveys then, including in the early to mid 80s, so good comparative data
  - Current work at this time including by CCC and others
  - Perceived availability of volunteers and staff
- Note that targeted surveying needed for at least two of the 37 species, namely bittern and marsh crake

Te Waihora Lake Shore Management Areas
(after Taylor 1996)

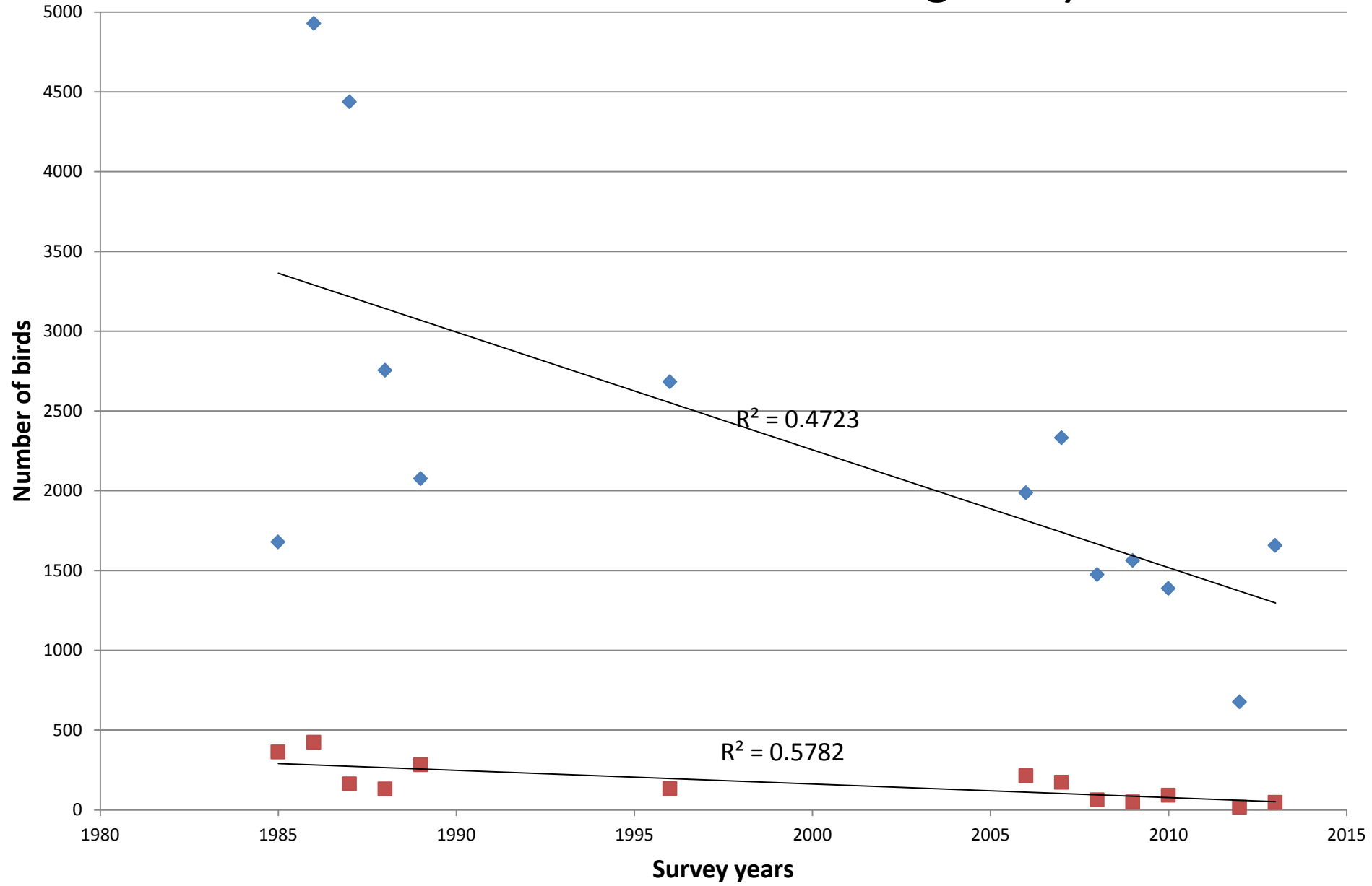
2013 survey

- Carried out on Saturday 9th February – lake was very low (having been open to the sea for months), weather started foggy, then warm and then a little windy
- 32 participants of varying ability (and this is important)
- Press releases made and information share amongst all contributing organisations
- 55,728 birds, representing all 7 guilds (yes, a bittern was seen)
- Highlights:
  - We did it!
  - Huge Caspian colony along Greenpark Sands
  - Virtually all the Arctic migrants in Selwyn Bay (lucky me!)
  - Huge Royal Spoonbill colony

Some analysis of the longer-term data set

- With the assistance of others, including Andrew Crossland and Colin O'Donnell, I now have a set of 'counts' (not complete – marked *) for 13 years: 1985, 1986, 1987, 1988, 1989, 1996*, 2006, 2007, 2008, 2009*, 2010*, 2012*, 2013
- Have done some analysis of pre and post 2000 wading bird data – see graph following for Guild 3 = shallow water waders …

Trends in Guild 3 – shallow water migratory waders



Some key species of migratory waders over these same time periods

	1985	1986	1987	1988	1989	1996	Mean (pre 2000)	2006	2007	2008	2009	2010	2012	2013	Mean (post 2000)
Key NZ migrating wading birds															
Pied Stilt	1300	7362	2212	2067	2776	2328	3008	2937	2566	5776	4063	3549	1986	3726	3515
Banded Dotterel	1659	4846	4399	2749	2038	2554	3041	1757	1873	1328	963	1230	548	1228	1275
Wrybill	19	81	38	5	37	128	51	230	459	146	599	157	128	429	307
Key Arctic migrating wading birds															
Red Knot	85	44	31	85	17	27	48	34	16	11	21	10	0	0	13
Curlew Sandpiper	47	60	26	2	86	27	41	2	1	3	0	2	0	1	1
Red-necked Stint	200	137	71	0	99	63	95	26	63	18	13	25	15	34	28
Bar-tailed Godwit	20	0	2	41	30	1	16	325	119	145	175	259	91	436	221

Where to from here?

- Having an agreed protocol, and commitment to improvement, is an important output
- Having ‘newish’ to birdwatching people helping was also important, and can be improved over time
- Monitoring over time will allow us to continue to look at trends etc, as per the preliminary analysis I have undertaken here
- And, this data can increasingly be a part of ongoing data collection that reports on the state of Te Waihora/lake Ellesmere, across its full range of values